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IS 7769 (1975): Method for sensory evaluation of table butter [FAD 19: Dairy Products and Equipment]



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Indian Standard

METHOD FOR SENSORY EVALUATION OF TABLE BUTTER

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METHOD FOR SENSORY EVALUATION OF TABLE BUTTER

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Indian Standard

METHOD FOR SENSORY EVALUATION OF TABLE BUTTER

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 August 1975, after the draft finalized by the Sensory Evaluation Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Butter is generally sold as either table butter or cooking butter. The quality of table butter is judged on the basis of its sensory characteristics. The main characteristics which are looked for by the consumers are colour, taste, body, aroma, texture and moisture. In this standard an attempt has been made to prescribe a practicable method for sensory evaluation of butter and to lay down conditions of testing in order to unify practices prevalent in various dairies in the country. It is expected that this method will help in training the personnel and in establishing more uniform criteria for sensory evaluation of butter by consumers as well as manufacturers in achieving uniformity in the method of testing butter thereby facilitating interpretation and comparison of results.

0.3 This standard is complimentary to IS : 3507-1966*.

1. SCOPE

1.1 This standard prescribes conditions, technique, method and evaluation card for sensory evaluation of table butter.

2. TERMINOLOGY

2.1 For the purpose of this standard, the following definitions in addition to those given in IS : 5126 (Part I)-1969† and IS : 5126 (Part II)-1969‡, shall apply.

2.1.1 *Crumbly* — Lack of formation of neat slabs and not responding satisfactorily to knife or wire.

*Methods of sampling and test for butter.

†Glossary of general terms for sensory evaluation of foods: Part I Methodology.

‡Glossary of general terms for sensory evaluation of foods: Part II Quality characteristics.

2.1.2 Dull — Associated with high moisture and over working.

2.1.3 Flat — Absence of characteristic delicate flavour often associated with balanced combination of volatile flavouring constituents like diacetyl, etc. It is a negative attribute and should not be confused with objectionable flavour.

2.1.4 Greasy — Associated with excessively soft condition of butter grains.

2.1.5 Leaky — Evidenced by large amount of moisture on the plug when butter is removed from a block by a trier.

2.1.6 Mottled and Wavy — Unevenness of colour in butter indicated in the form of streaks, waves and mottles. In case of mottles, sample has spots of higher or deeper shades of yellow throughout the body.

2.1.7 Mouldy — Presence of black, green, white or even bluish spots. This is a very objectionable defect.

2.1.8 Neutralizer — When high acid milk is neutralized with sodium carbonate group of neutralizers, milk develops flavour reminiscent of soap.

2.1.9 Oily — Refers to flavour resembling machine oil. Very often it is associated with the development of other objectionable flavours, such as metallic.

2.1.10 Stale — The flavour defect associated with old stored raw materials, namely, cream. Good aeration improves this characteristic.

2.1.11 Tallowy — Flavour similar to mutton tallow caused due to oxidation of unsaturated glycerides of butter.

2.1.12 White Specks — Due to incorporation of small pieces of coagulated casein in butter.

3. GENERAL CONDITIONS

3.1 The conditions for sensory evaluation of butter shall be as given in IS : 6273 (Part I)-1971*.

4. PANELISTS

4.1 Selection — Persons with normal sensitivity for taste and odour should be selected. They should have ability to detect small differences between paired samples and to distinguish and discriminate between butter samples with minor flavour, colour or textural differences.

*Guide for sensory evaluation of foods: Part I Optimum requirements.

They should be able to recognize the primary stimuli like sweet, sour, salty and bitter. Selection among the available panelists should be based on their significant capacity to distinguish quality variations and other attributes. Those who dislike butter or any other milk products should be excluded from the panel.

NOTE — A separate detailed Indian Standard covering all aspects of panel selection is under preparation.

4.2 Training

4.2.1 Preparation of Butter Samples for Training — A control sample of fresh butter (prepared under standard condition either from unripened or ripened cream) representing desirable characteristics like flavour, texture and colour should be served along with the samples having following defects:

- a) *Flat* — Convert fresh pasteurized cream into butter and wash excessively.
- b) *Stale* — Store in a closed container at 10°C and below for 72 hours.
- c) *Neutralizer* — Prepare butter from cream having more than 2 percent lactic acidity neutralized to zero percent acidity and pasteurized at 70°C and above for 30 minutes.
- d) *Oily* — Take butter from re-separated cream and pasteurized at 70°C for more than 30 minutes.
- e) *Tallowy* — Prepare by exposing butter as obtained in (d) to sunlight for 3 hours or more. This may be accelerated by incorporating 0.5 to 1 ppm of chlorides of iron or copper before exposure to sunlight.
- f) *Leaky* — Overwork (4 to 5 times) butter from neutralized cream at 60°C.
- g) *Greasy* — Same as leaky.

4.2.2 Procedure for Training — The panelists should be familiarized with all the desirable characteristics of fresh butter. They should be trained to distinguish between 0.5 to 2 ppm of diacetyl in aqueous solutions. They should also be trained to distinguish samples with common defects, such as flat, oxidized, rancid, mouldy flavours; mottled colour; greasy, leaky and oily texture; and presence of foreign matter. Panelists should also be familiarized with common adulterants of butter.

4.2.2.1 A series of 20 judgements should be obtained from each prospective panelist utilizing a pair of samples with known differences. To compensate for the known variations from day to day a qualifying test is given for a 3-day period. Those who make an acceptable (75 percent correct) score should be chosen.

4.3 The panelists should be checked once in three months for their consistency and acuity.

4.4 Number of Panelists — Five to seven panelists should be employed in the evaluation to arrive at consistent and statistically valid results. At least 10 judgements should be taken.

5. SAMPLING, PREPARATION AND PRESENTATION

5.1 Sampling — A representative sample should be drawn from the lot (see IS: 3507-1966*). Precautions should be taken to avoid an extraneous contamination in drawing, handling and presentation of samples.

5.2 Preparation of Samples — Butter samples should be presented in cubes wrapped in butter paper for evaluation. It may be cut in small slices to see any impurities and curdled portions.

5.3 Amount for Each Sample — A sample of about 25 grams should be sufficient.

5.4 Number of Samples — The number of samples in one session should not exceed five.

5.5 Coding — Coding of the samples should be done as recommended in 7 of IS: 6273 (Part I)-1971†.

6. PROCEDURE

6.1 Technique of Testing — The samples should be examined for colour, appearance and finish first followed by judging moisture, body and texture. Flavour should be evaluated last.

6.2 Method — Follow composite scoring method as given in 4.2.8 of IS: 6273 (Part II)-1971‡.

6.3 Evaluation Card — Use the evaluation card as given in Table 1 for recording observations of the panelists. Calculate the final score by deducting score under Section 'B' from score under Section 'A'.

6.4 Grading — After computations of data recorded in Table 1 by the panelist the following gradation should be specified:

<i>Quality</i>	<i>Score</i>	<i>Grade</i>
Excellent	90 or above	A
Good	80-89	B
Fair	60-79	C
Poor	59 and below	D

*Methods of sampling and test for butter.

†Guide for sensory evaluation of foods: Part I Optimum requirements.

‡Guide for sensory evaluation of foods: Part II Methods and evaluation cards.

TABLE 1 EVALUATION CARD FOR BUTTER

(Clause 6.3)

Name..... Date.....

Batch or Code No. Time.....

A. Assign score for each sample for different characteristics. First go through Section B.

CHARACTERISTICS	MAXIMUM SCORE	SAMPLE SCORE
i) Flavour	50	
ii) Body and texture	30	
iii) Colour and appearance	15	
iv) Package finish	5	

B. Indicate, if any, the degree of defects such as the following. Encircle the one applicable and deduct from the appropriate attribute.

CHARACTERISTICS	DEFECT	DEGREE OF DEFECTS		
		Suspicion	Slight	Pronounced
i) Flavour	{ Rancid	5	7	15
	{ Tallowy	5	7	15
	{ Neutralizer	1	3	5
	{ Others	1	3	5
ii) Body and texture	{ Leaky	3	5	10
	{ Greasy	1	3	10
	{ Oily	1	3	10
	{ Crumbly	1	3	10
iii) Colour, appearance and finish	{ Mottled and wavy	2	4	6
	{ Mouldy	3	5	7
	{ Dull	1	4	6
	{ White specks	1	2	4

7. STATISTICAL EVALUATION OF RESULTS

7.1 For the purpose of statistical evaluation one of the methods mentioned under 4.2.8 of IS : 6273 (Part II)-1971* should be adopted.

*Guide for sensory evaluation of foods: Part II Methods and evaluation cards.

INDIAN STANDARDS
ON
SENSORY EVALUATION

IS:

- 5126 (Part I)-1969 Glossary of general terms for sensory evaluation of foods: Part I Methodology
- 5126 (Part II)-1969 Glossary of general terms for sensory evaluation of foods: Part II Quality characteristics
- 6273 (Part I)-1971 Guide for sensory evaluation of foods: Part I Optimum requirements
- 6273 (Part II)-1971 Guide for sensory evaluation of foods: Part II Methods and evaluation cards
- 7675-1975 Method for sensory evaluation of beer
- 7769-1975 Method for sensory evaluation of table butter
- 7770-1975 Method for sensory evaluation of *GHEE* (clarified butterfat)

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